

REMARKS

In the Office Action mailed June 30, 2005, claims 1-7 and 12 were rejected under 35 U.S.C. § 102(e) and claims 8-11 and 13-31 were rejected under 35 U.S.C. § 103(a). As set forth, claims 1, 7, 9-10, 12, 14, 23 and 26 have been amended (e.g., independent claims 1, 7 and 23 have been amended, claims 9-10, 12 and 14 have been amended to comply with the amendments to claims 7, and claim 26 has been amended to comply with a canceled claim), and claims 2-6, 8, 13 and 25 have been canceled.

Applicant has reviewed the entire Office Action and all ten cited references and requests reconsideration in view of the following.

1. Response to Rejections of claims 1-7 and 12 under 35 U.S.C. § 102(e) as being anticipated by Dietz (U.S. Patent Application Pub. No. 20040203706)

To anticipate a claim, each and every element set forth in the claim must be found in a single reference. (MPEP § 2131). Further, "[t]he identical invention must be shown in as complete detail as contained in the ... claims." (MPEP § 2131). Applicant submits Dietz does not teach "causing an antenna of the wireless repeater to sweep over a coverage area through increments," "at each increment, receiving wireless signals," "determining a signal-to-noise ratio at each increment," and "based on the signal-to-noise ratio, the wireless repeater repeating the wireless signals at one of the increments," as in claim 1 and similarly in claim 7.

Dietz teaches a method to expand the coverage areas of base stations by installing repeaters within cars, so that there could be a chance that sequential sets of repeaters within cars traveling in remote regions could eventually establish a wireless connection between a mobile station and the base station. Dietz does not mention repeating signals to a selected area, as in the present claims. Since Dietz does not teach all the claim limitations of claims 1 and 7, Dietz does not anticipate claims 1, 7 and 12.

2. Response to Rejections of claims 8, 16 and 18-19 under 35 U.S.C. § 103(a) as being unpatentable over Dietz in view of Song (U.S. Patent Application Pub. No. 20040146013)

To establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), cited references must teach or suggest all claim limitations. (MPEP § 2142). Applicant submits that the combination of Dietz and Song fails to teach or suggest "incrementally adjusting the wireless repeater to receive wireless signals within the number of coverage areas," "determining characteristics of the wireless signals," and "based on the characteristics, directing the wireless repeater to radiate amplified wireless signals to one of the number of coverage areas," as in claim 16.

The Examiner stated that Dietz does not disclose "receiving the wireless signals by directing an antenna to incrementally sweep its coverage area across a given area." (Office Action, p. 5). Similarly, Song fails to disclose such teaching.

Song discloses a repeater with two antennas and switched control circuitry to control the direction of transmission of the antennas. The control circuitry applies a duty cycle to switches that is configured so that up-link and down-link transmissions to and from the antennas occur during non-overlapping time slots. Song discloses that if a mobile station begins an up-link communication, then the control circuitry will detect a signal at one antenna and configure the switches into the up-link direction. Alternatively, if a down-link transmission begins, then a signal at the other antenna will be detected and the switches will be configured into the down-link direction. If there are no signals then the switches may be switched off. If up and down-link transmissions begin together then the control circuitry will select, perhaps randomly or according to some hierarchy, either an up and down-link direction but not both. (¶0041). Thus,

Song teaches that the control circuitry outputs control signals to switches that direct the switches to select amplification of the up-link or down-link directions. (§0044).

The Examiner contended that Song discloses "receiving the wireless signals by directing an antenna to incrementally sweep its coverage area across a given area (repeater 1030 is positioned in area 1020 for extending coverage area 1020 to coverage area 1040, see fig. 10, p. 6 [0062])." (Office Action, p. 5). However, the Examiner's reasoning in the parenthetical only explains typical operation of a repeater, not that which is recited in the claims. Further, the cited section only explains an example of a repeater in typical operation. Song does not teach or suggest "incrementally adjusting the wireless repeater to receive wireless signals within the number of coverage areas," and subsequently "directing the wireless repeater to radiate amplified wireless signals to one of the number of coverage areas," as in claim 16. Rather, Song teaches directing a repeater to transmit to a given area based on which antenna received a signal.

Since the combination of Dietz and Song does not teach or suggest "incrementally adjusting the wireless repeater to receive wireless signals within the number of coverage areas," the combination of Dietz and Song does not render claims 16 and 18-19 obvious.

3. Response to Rejections of claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Dietz in view of Lehmusto (U.S. Patent No. 5,907,794)

Dietz does not teach or suggest "receiving wireless signals by directing an antenna to incrementally sweep its coverage area across a given area," and subsequently "directing the wireless repeater to radiate amplified wireless signals at a given increment," as in claim 7 (from which claim 10 depends) as discussed above. Neither does Lehmusto. Further, the combination of Dietz and Lehmusto does not teach or suggest "for each of the received wireless signals, storing in data storage a coverage area identifier corresponding to an increment from which the wireless signals were received," as in claim 10.

Lehmusto teaches a method to control operation of mobile stations by maintaining information of the stations operating on a direct mode channel in the coverage area of a repeater. In particular, a database is maintained at the repeater that stores identifiers of mobile stations that operate on direct mode channels within the coverage area of the repeater. Also, identifiers of the direct mode channels on which the mobile stations operate are stored. (Col. 3, lines 25-32). However, Lehmusto does not teach or suggest storing "a coverage area identifier corresponding to an increment from which the wireless signals were received," as in claim 10.

Since the combination of Dietz and Lehmusto does not teach or suggest all claim limitations of claim 10, the combination of Dietz and Lehmusto does not render claim 10 obvious.

4. **Response to Rejection of claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Dietz in view of Jami (U.S. Patent Application Publication No. 20030220109)**

Claim 13 has been canceled rendering this rejection moot.

5. **Response to Rejections of claims 11 and 14-15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dietz in view of Kuwahara (U.S. Patent Application Publication No. 20030162550)**

Dietz does not teach or suggest "receiving wireless signals by directing an antenna to incrementally sweep its coverage area across a given area," and subsequently "directing the wireless repeater to radiate amplified wireless signals at a given increment," as in claim 7 (from which claims 11 and 14-15 depend) as discussed above. Neither does Kuwahara.

Kuwahara teaches a method for a mobile station to calculate its position based on received signals, eliminating the influence of repeated signals from a repeater on the calculation. (Abstract). Kuwahara is not directed toward wireless repetition of signals.

Since the combination of Dietz and Kuwahara does not teach or suggest all claim limitations of claim 7, the combination of Dietz and Kuwahara does not render claims 11 and 14-15 obvious.

6. Response to Rejections of claims 9 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dietz in view of Chen (U.S. Patent No. 6,782,277)

Dietz does not teach or suggest "receiving wireless signals by directing an antenna to incrementally sweep its coverage area across a given area," and subsequently "directing the wireless repeater to radiate amplified wireless signals at a given increment," as in claim 7 (from which claim 9 depends) and similarly in claim 16 (from which claim 17 depends) as discussed above. Neither does Chen.

Chen discloses employing beam steering techniques to decrease the required transmit power of base stations in a system. A base station uses beam steering to transmit and receive signals along a relatively narrow signal beam that "sweeps" through the coverage area of the base station. (Col. 3 line 61 to Col. 4 line 4). As a base station's signal beam sweeps through the base station's coverage area, the signal beam passes through a portion of the coverage area containing different active subscriber stations. Transmission of user data from the base station is delayed so that the data is transmitted while its destination or source subscriber station is within the base station's signal beam. (Col. 4, lines 34-42). As a signal beam continually sweeps, the base station predicts when the signal beam angle will be optimal for efficiently transmitting forward-link supplement channel traffic to each subscriber station. The base station buffers user data addressed to a subscriber station until a signal beam reaches the signal beam angle that is optimal for transmitting to that subscriber station. (Col. 6, lines 28-41).

The Examiner contended that Chen teaches "incrementally receiving the wireless signals from a plurality of directional antennas (base station 102 with directional antenna 104 receives

signals from subscriber stations 108a and 108b as signal beam 110 sweeps from sector 112a to sector 112b, see figs. 1 and 6, col. 5, lines 64-67, col. 6, lines 1-16)." (Office Action, p. 11). However, Chen does not teach directing the wireless repeater to radiate amplified wireless signals at a given increment. Rather, the base station continually sweeps across its coverage area to transmit signals in all directions.

Also, Chen does not teach selecting an increment at which to radiate signals based on the signals that were received by "directing an antenna to incrementally sweep its coverage area across a given area," as in claim 7 and similarly in claim 16. As mentioned, Chen teaches continually sweeping across an area to transmit signals. No selection of an area at which to transmit signals is made. Furthermore, Chen does not teach "directing the *wireless repeater* ..." as in the present claims. Chen teaches a *base station* that transmits signals by sweeping across an area. Thus, Chen does not teach radiating "*amplified* wireless signals at a given increment," as in the present claims.

Moreover, there is no motivation to combine the Dietz and Chen teachings. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. (MPEP §2143). To make a successful §103(a) obviousness rejection, the Office must show some objective teaching in the prior art or explain how one of ordinary skill in the art would be motivated to combine the relevant teachings. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). Presently, the Examiner has not shown any objective teaching in Dietz or Chen to explain how one of ordinary skill in the art would be motivated to combine their teachings. The Examiner contended that "it would have been obvious to one of ordinary skill in the art to combine the teaching of Chen et al into the system of Dietz et al for the benefit of preventing interference to subscriber stations neighboring

cells.” (Office Action p. 11). Applicant submits that the Examiner has only alleged in a conclusory manner that it would have been obvious to combine the elements of the references without pointing to any objective teaching in the references themselves.

Applicant submits that it is not obvious to combine teachings of Chen into the system of Dietz for the benefit of preventing interference to subscriber stations neighboring cells. Dietz is directed toward a method for extending the coverage area of a base station by installing repeaters within cars so that hopefully, a mobile station could establish a wireless connection with the base station through a traveling car. Chen is directed toward a beam sweeping base station. Chen is not concerned at all with wireless signal repeating, and Dietz does mention beam sweeping or allude to any benefit of applying beam sweeping within its wireless repeating system.

Since the combination of Dietz and Chen does not teach or suggest all claim limitations of claims 9 and 16, and since there is no motivation to make the asserted combination, this combination does not render claims 9 and 17 obvious.

7. Response to Rejection of claim 20 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Dietz in view of Song as applied to claim 16 above, and further in view of Lehmusto

Please refer to the arguments under sub-headings #2 and #3 in response to this rejection.

8. Response to Rejection of claim 23 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamaki (U.S. Patent Application Publication No. 20030124976) in view of Lehmusto and Dietz

Applicant submits that the combination of Tamaki, Lehmusto and Dietz does not teach or suggest a wireless repeater including a donor antenna operable to “receive wireless signals over a coverage area by incrementally sweeping across the coverage area,” and a processor operable to “direct the donor antenna to radiate amplified wireless signals at a given increment,” as in claim

23. Both Lehmusto and Dietz fail to teach or suggest these claim limitations as discussed above. Neither does Tamaki.

Tamaki discloses a repeater that discontinues repetition of wireless signals to a base station upon being informed that the communication capacity of the base station has exceeded a threshold level. Tamaki does not mention antennas operable to sweep across an area, as in the present claims.

Since the combination of Tamaki, Lehmusto and Dietz does not teach or suggest a wireless repeater as recited in claim 23, the combination of Tamaki, Lehmusto and Dietz does not render claim 23 obvious.

9. Response to Rejections of claims 21-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dietz in view of Song and Lehmusto and further in view of Kuwahara

As discussed above under su-headings #2, #5 and #7, Applicant submits that the combination of Dietz, Song, Lehmusto and Kuwahara fails to teach or suggest "incrementally adjusting the wireless repeater to receive wireless signals within the number of coverage areas," "determining characteristics of the wireless signals," and "based on the characteristics, directing the wireless repeater to radiate amplified wireless signals to one of the number of coverage areas," as in claim 16 (from which claims 21-22 depend).

10. Response to Rejection of claim 24 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamaki in view of Lehmusto and Dietz as applied to claim 23 above, and further in view of Kuwahara

As discussed above under sub-headings #5 and #9, Applicant submits that the combination of Tamaki, Lehmusto, Dietz and Kuwahara does not teach or suggest a wireless repeater including a donor antenna operable to "receive wireless signals over a coverage area by incrementally sweeping across the coverage area," and a processor operable to "direct the donor

antenna to radiate amplified wireless signals at a given increment," as in claim 23 (from which claim 24 depends).

11. Response to Rejections of claims 25 and 30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamaki in view of Lehmusto and Dietz as applied to claim 23 above, and further in view of Chen

Claim 25 has been canceled. Applicant submits that the combination of Tamaki, Lehmusto, Dietz and Chen does not teach or suggest a wireless repeater including a donor antenna operable to "receive wireless signals over a coverage area by incrementally sweeping across the coverage area," and a processor operable to "direct the donor antenna to radiate amplified wireless signals at a given increment," as in claim 23 (from which claim 30 depends).

The Examiner is referred to the arguments made above under sub-headings #6 and #9.

12. Response to Rejection of claim 26 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamaki in view of Lehmusto and Dietz and Chen as applied to claim 25 above, and further in view of Kita (U.S. Patent No. 5,534,872)

Applicant submits that the combination of Tamaki, Lehmusto, Dietz, Chen and Kita does not teach or suggest a wireless repeater including a donor antenna operable to "receive wireless signals over a coverage area by incrementally sweeping across the coverage area," and a processor operable to "direct the donor antenna to radiate amplified wireless signals at a given increment," as in claim 23 (from which claim 26 depends). Also, this combination does not teach or suggest "wherein at each increment, the donor antenna receives wireless signals and passes the wireless signals to the processor which records in the data storage the increment at which each wireless signal was received," as in claim 26.

With regard to the claim rejection under sub-heading #3 above, on page 8 of the Office Action, the Examiner contended that Lehmusto discloses for each received wireless signal, storing in data storage a coverage area identifier corresponding to a coverage area from which

the wireless signals were received. However, with regard to the claim rejection here (under sub-heading #12), the Examiner stated that the combination of Tamaki, *Lehmusto*, Dietz and Chen does not disclose receiving wireless signals and passing them to the processor which records in data storage the increment at which each wireless signal was received, but that Kita teaches storing the increment at which each wireless signal was received. (Office Action, p. 18). These are contradicting statements, and for the purposes of this response, Applicant submits that *Lehmusto* does not teach this claim limitation.

The combination of Tamaki, *Lehmusto*, Dietz and Chen fail to teach all claim limitations of claim 23 as discussed above under sub-heading #11. In addition, Kita fails to make up for the shortcomings of the other 4 references. Kita teaches a radio signal detecting system that is an antenna mounted on a wrist watch, and receives signals reflected from a target so as to determine a distance from the target. Kita has nothing to do with repeating signals. Further, Kita is directed toward a compact, light-weight signal detecting system mounted in a watch. Kita does not make up for the shortcomings of the other 4 references, and moreover, there is no motivation to combine Kita with any of the 4 references. The Examiner contended that it would have been obvious to one of ordinary skill in the art to combine the teaching of Kita into the system of Tamaki, *Lehmusto*, Dietz and Chen for the benefit of measuring the distance for transmitting a radio signal. (Office Action, p. 19). The Examiner has made an improper combination using hindsight analysis. Further, no objective evidence has been offered to combine the teachings of the wristwatch signal detecting system in Kita with the teachings in the other 4 references to arrive at the present invention.

Since the combination of Tamaki, Lehmusto, Dietz, Chen and Kita does not teach or suggest all claim limitations of claim 23, and since no evidence of motivation to combine these teachings has been provided, this combination does not render claim 26 obvious.

13. Response to Rejection of claim 31 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamaki in view of Lehmusto and Dietz as applied to claim 23 above, and further in view of Chen and Kita

Please refer to the arguments under sub-heading #12 in response to this rejection.

14. Response to Rejection of claim 27 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamaki in view of Lehmusto and Dietz and Chen and Kita as applied to claim 26 above, and further in view of Wang (U.S. Patent No. 6,799,024)

Applicant submits that the combination of Tamaki, Lehmusto, Dietz, Chen, Kita and Wang does not teach or suggest a wireless repeater including a donor antenna operable to "receive wireless signals over a coverage area by incrementally sweeping across the coverage area," and a processor operable to "direct the donor antenna to radiate amplified wireless signals at a given increment," as in claim 23 (from which claim 27 depends). With regard to the Tamaki, Lehmusto, Dietz, Chen and Kita references, the arguments above under sub-heading #12 are incorporated herein. Further, Wang does not even teach a repeater, and thus does not make up for the shortcomings of the other 5 references.

In addition, the Examiner has only made conclusory statements regarding any potential motivation to combine these 6 references. To establish a *prima facie* case under 35 U.S.C. § 103(a), the Office must show some objective teaching in the prior art or explain how one of ordinary skill in the art would be motivated to combine the relevant teaching. No objective teaching has been offered to combine these 6 references.

Since the combination of Tamaki, Lehmusto, Dietz, Chen, Kita and Wang does not teach or suggest all claim limitations of claim 23, and since no evidence of motivation to combine these references has been provided, this combination does not render claim 27 obvious.

15. Response to Rejections of claims 28-29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamaki in view of Lehmusto and Dietz and Chen and Kita and Wang as applied to claim 27 above, and further in view of Tak (U.S. Patent No. 6,567,460)

With regard to the Tamaki, Lehmusto, Dietz, Chen, Kita and Wang references, the argument above under sub-heading #14 is incorporated herein. Tak also fails to make up for the short comings of the other 6 references. Tak is directed toward detecting pilot PN offsets in a conventional cordless telephone that includes a charging system connected to the PSTN. Tak does not mention wireless signal repeating, and thus does not teach or suggest a wireless repeater including a donor antenna operable to "receive wireless signals over a coverage area by incrementally sweeping across the coverage area," and a processor operable to "direct the donor antenna to radiate amplified wireless signals at a given increment," as in claim 23 (from which claims 28-29 depend).

Within the present Office Action, the Examiner has made many 103 claim rejections combining two, three, and up to even seven references in an attempt to obviate the present claims. Applicant submits that to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), there must be motivation to combine teachings within the cited references. (MPEP § 2142). The Examiner has not, in many instances, stated objective evidence to establish motivation for combining the references. Conclusory statements of motivation are not sufficient.

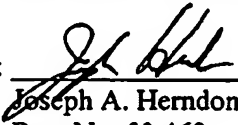
CONCLUSION

Applicant respectfully submits that, in view of the remarks above, all of the pending claims are in condition for allowance. Applicant therefore respectfully requests such action. The Examiner is invited to call the undersigned at (312) 913-3331 with any questions or comments.

Respectfully submitted,

McDonnell Boehnen Hulbert & Berghoff LLP

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By: 
Joseph A. Herndon
Reg. No. 50,469